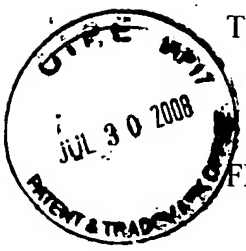
HT03-005CC

10/781,000



July 16, 2008

TO: Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

FROM: Stephen B. Ackerman, Reg. No. 37,761
28 Davis Ave.
Poughkeepsie, NY 12603

SUBJECT:

Serial #:	10/781,000
File Date:	02/18/2004
Inventor:	M. Dovek
Title:	CROSS TALK AND EME MINIMIZING SUSPENSION DESIGN
Art Unit:	2627
Examiner:	William Joseph Klimowicz

APPEAL BRIEF

Dear Sir:

In response to the Final Rejection of Claims 1, 3-6, 19 and 21-24 dated November 27, 2007 and the Advisory Action Dated March 31, 2008 for the above identified Application for Patent please accept this Appeal Brief.

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Arlington, VA 22313-1450 on July 28, 2008.

Signature _____ Date: July 28, 2008

Name Stephen B. Ackerman, Reg. #37,761

07/31/2008 CNGUYEN2 00000025 190033 10781000
01 FC:1402 510.00 DA

The Commissioner is hereby authorized to charge payment of the fee of $510.00 associated with this communication to Deposit Account No. 19-0033. A duplicate copy of this sheet is enclosed.

With Best Regards,

Stephen B. Ackerman, Reg. No. 37,761

REAL PARTY IN INTEREST

The real parties in interest is the assignee, Headway Technologies, Inc., Milpitas, California. An assignment has been recorded in this case.

RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

STATUS OF THE CLAIMS

Claims 1, 3-6, 19 and 21-24 are pending in the Patent Application and have been rejected. Claims 2, 7-18, 20, 25-36 have been cancelled. This appeal is to the rejection of Claims 1, 3-6, 19 and 21-24. The Claims Appendix has a Listing of the Claims in numerical sequence.

STATUS OF THE AMENDMENTS

No amendments have been filed subsequent to the final rejection and there are no amendments pending.

SUMMARY OF THE CLAIMED SUBJECT MATTER

INDEPENDENT CLAIMS:

1. A crosstalk and EME (electromagnetic emission) minimizing trace suspension assembly structure comprising:

a) multiple write lines which are crossed between a preamplifier connection point and slider write contact pads; (Fig. 4, as described at page 11, lines 14-21)

b) multiple read lines driven by preamplifier circuits; (Fig. 2, 260, 270, as described at page 7, lines 9-18)

c) said slider write contact pads, which connect said write lines to said trace suspension assembly structure; (Fig. 2, as described at page 7, lines 4-8)

d) slider read contact pads, which connect said read lines to said trace suspension assembly structure; and (Fig. 2, as described at page 7, lines 4-8)

e) multiple write lines driven by preamplifier circuits, (Fig. 2, 240, 250, as described at page 7, lines 9-18)

wherein said multiple write lines which are crossed between said preamplifier connection point and said slider write contact pads are used to cancel out time-delayed (transmission line effects) parts of said crosstalk and said EME,

wherein a single crossing point of said write lines between said preamplifier connection point and said slider write contact pads is placed halfway between said preamplifier connection point and said slider write contact pads.

19. A method of minimizing crosstalk and EME (electromagnetic emission) in a trace suspension assembly structure comprising the steps of:

a) providing multiple write lines which are crossed between a preamplifier connection point and slider write contact pads; (Fig. 4, as described at page 11, lines 14-21)

b) providing multiple read lines driven by preamplifier circuits; (Fig. 2, 260, 270, as described at page 7, lines 9-18)

c) providing said slider write contact pads, which connect said write lines to said trace suspension assembly structure; (Fig. 2, as described at page 7, lines 4-8)

d) providing slider read contact pads, which connect said read lines to said trace suspension assembly structure; and (Fig. 2, as described at page 7, lines 4-8)

e) providing multiple write lines driven by preamplifier circuits, (Fig. 2, 240, 250, as described at page 7, lines 9-18)

wherein said multiple write lines which are crossed between said preamplifier connection point and said slider write contact pads are used to cancel out time-delayed (transmission line effects) parts of said crosstalk and said EME,

wherein a single crossing point of said write lines between said preamplifier connection point and said slider write contact pads is placed halfway between said preamplifier connection point and said slider write contact pads.

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether Claims 1, 3-6, 19 and 21-24 are unpatentable under 35 USC 103(a) over Carpenter et al. (WO 98/20485 A1) in view of Murata et al. (JP 06-342858 A).

ARGUMENT

Rejection of Claims 1, 3-6, 19 and 21-24 under 35 USC 103(a) as being unpatentable over Carpenter et al. (WO 98/20485 A1) in view of Murata et al. (JP 06-342858 A).

Claims 1, 3-6, 19 and 21-24 describe a structure and method for minimizing EME (Electromagnetic Emission) and the crosstalk between the signal lines which are used to write and read the tracks of magnetic disk drives. These signal lines are located on magnetic trace suspension assemblies which move above the magnetic disk drives. The structure and method utilize well-placed single and multiple crossovers on either or both of the lines used to read and write the tracks on magnetic disks. In addition, the structure and method utilize the parasitic capacitances between the write and read lines to couple beneficial voltages which cancel the unwanted crosstalk noise.

In the reply submitted November 2, 2007, there were three points made. The first is that the stated objective of Carpenter et al. is "providing reduced susceptibility to electromagnetic interference and stray signal pickup". Structurally, Carpenter solves its stated objective above by using, "a twisted wire transmission pair in order to provide self-shielding of one or multiple signal pairs against unwanted electromagnetic noise (EMI) or radio frequency interference (RFI). Therefore, the instant application and Carpenter use different structures to solve different problems. In summary, the instant application solves the problem of preventing interference from the trace assembly itself from interfering with units outside of the trace assembly, while Carpenter solves the problem

of protecting the trace assembly from interference from sources outside of the trace assembly. The title of Carpenter et al. contains the words "self-shielding". On the other hand, independent claim 1 of the instant application, which is listed below, clearly states the purpose of the instant application which is "used to cancel out time-delayed (transmission line effects) parts of said crosstalk and said EME".

A crosstalk and EME (electromagnetic emission) minimizing trace suspension assembly structure comprising:

multiple write lines which are crossed between a preamplifier connection point and slider contact pads;

multiple read lines driven by pre-amplifier circuits;

slider contact pads, which connect said write lines to said trace suspension assembly;

slider contact pads, which connect said read lines to said trace suspension assembly; and

multiple write line driven by preamplifier circuits,

wherein said multiple write lines which are crossed between said preamplifier connection point and said slider contact pads are used to cancel out time-delayed (transmission line effects) parts of said crosstalk and said EME,

wherein a **single** crossing point of said write lines between said preamplifier connection point and said slider contact pads is placed halfway between said preamplifier connection point and said slider contact pads.

The examiner in the **Response to Arguments** section on page 7 of the November 27, 2007 Office Action does not address a rebuttal to this point of difference between the stated different problems solved in Carpenter versus the instant application. Therefore, based on the wording of independent claims 1 and 19, which clearly states the advantage of the instant application, claims 1 and 19 and their dependent claims should be allowed over Carpenter et al.

The second point made in the reply submitted November 2, 2007, is that the examiner in the September 5, 2007 office action, reinforces the fact that "Carpenter et al. does not expressly disclose a single crossing point of said write lines between said preamplifier connection point and said slider contact pads...". The examiner does address this point in the **Response to Arguments** section on page 7 of the November 27, 2007 Office Action. However, the argument made by the examiner is weakened in a couple of areas. First, Murata does not explicitly state that there is an exact mid-point crossing of write lines. Murata states that "a field negates mutually" in paragraph 0016. A person skilled in the art cannot necessarily infer that this phrase describes an exact mid-point of the write lines. Also, a person skilled in the art cannot necessarily infer that if "a field negates mutually" that it will totally cancel the noise produced. Second, the instant application provides proof of the unexpected beneficial result that the noise produced is indeed completely canceled out by the mid-point crossing of the write lines as indicated by the rigorous equation result on page 12 of the instant application.

Thirdly, as previously stated, Murata et al. is in different fields of practice than the instant application and Carpenter. Murata is in the field of hybrid integrated circuits, whereas the instant application and Carpenter are in the field of magnetic recording assemblies. Murata et al. refers to magnetic fields not induced crosstalk voltage caused by capacitive coupling as in the instant application. For example, this is clearly demonstrated in Murata's Purpose, "To obtain a hybrid integrated circuit enabling suppression of a magnetic field generated when a differential signal is transmitted and also improvement of a noise emission characteristic." The above shows that Murata is in

a different field from both the instant application and in a different field from Carpenter. Therefore, as the Supreme Court has stated, it is "important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements" in the manner claimed. Since Murata is in the field of hybrid integrated circuits and not magnetic trace assemblies such as in the instant application and as in Carpenter, there is not a clear reason that would have prompted a person of ordinary skill in the relevant field to combine Murata with Carpenter. It can be argued that Murata is not pertinent to the instant application, since one ordinarily skilled in the art would not logically be expected to combine the trace assembly aspects of Carpenter with the integrated circuit designs of Murata. This is especially true, since the language of Murata does not explicitly state that the noise is totally suppressed. Therefore independent claims 1 and 19 should be allowed since there is no obvious reason to combined Carpenter with Murata. Similarly, dependent claims 3-6 and 21-24 which depend on independent claims 1 and 19 should now be allowed.

SUMMARY

It is believed that Claims 1, 3-6, 19 and 21-24 distinguish patentably from the references and should be allowed.

Applicant requests that the Board of Appeals reverse the final rejection of Claims 1, 3-6, 19 and 21-24 under 35 U.S.C. 103(a) as being unpatentable over Carpenter et al. (WO 98/20485 A1) in view of Murata et al. (JP 06-342858 A).

Claims 2, 7-18, 20, and 25-36 have been cancelled.

Respectfully submitted,

Stephen B. Ackerman, Reg. No. 37,761

CLAIMS APPENDIX

Listing of Claims:

1. A crosstalk and EME (electromagnetic emission) minimizing trace suspension assembly structure comprising:

multiple write lines which are crossed between a preamplifier connection point and slider write contact pads;

multiple read lines driven by preamplifier circuits;

said slider write contact pads, which connect said write lines to said trace suspension assembly structure;

slider read contact pads, which connect said read lines to said trace suspension assembly structure; and

multiple write lines driven by preamplifier circuits,

wherein said multiple write lines which are crossed between said preamplifier connection point and said slider write contact pads are used to cancel out time-delayed (transmission line effects) parts of said crosstalk and said EME,

wherein a single crossing point of said write lines between said preamplifier connection point and said slider write contact pads is placed halfway between said preamplifier connection point and said slider write contact pads.

2. Canceled

3. The crosstalk and EME minimizing structure of claim 1 wherein a crossing point of said write line is made by the addition of a metallization layer onto said trace suspension assembly structure.

4. The crosstalk and EME minimizing structure of claim 1 wherein multiple crossing points of said write lines are used to further cancel out time-delayed (transmission line effects) parts of said crosstalk and EME.

5. The crosstalk and EME minimizing structure of claim 1 wherein said write lines have parasitic capacitance between the write lines and the read lines.

6. The crosstalk and EME minimizing structure of claim 5 wherein said parasitic capacitances between the write lines and read lines are used to cancel crosstalk noise between said write lines and said read lines.

7-18. Canceled

19. A method of minimizing crosstalk and EME (electromagnetic emission) in a trace suspension assembly structure comprising the steps of:

providing multiple write lines which are crossed between a preamplifier connection point and slider write contact pads;

providing multiple read lines driven by preamplifier circuits;

providing said slider write contact pads, which connect said write lines to said trace suspension assembly structure;

providing slider read contact pads, which connect said read lines to said trace suspension assembly structure; and

providing multiple write lines driven by preamplifier circuits,

wherein said multiple write lines which are crossed between said preamplifier connection point and said slider write contact pads are used to cancel out time-delayed (transmission line effects) parts of said crosstalk and said EME,

wherein a single crossing point of said write lines between said preamplifier connection point and said slider write contact pads is placed halfway between said preamplifier connection point and said slider write contact pads.

20. Canceled

21. The method of minimizing crosstalk and EME of claim 19 wherein a crossing point of said write line is made by the addition of a metallization layer onto said trace suspension assembly structure.

22. The method of minimizing crosstalk and EME of claim 19 wherein multiple crossing points of said write lines are used to further cancel out time-delayed (transmission line effects) parts of said crosstalk and EME.

23. The method of minimizing crosstalk and EME of claim 19 wherein said write lines have parasitic capacitance between the write lines and the read lines.

24. The method of minimizing crosstalk EME of claim 23 wherein said parasitic capacitances between the write lines and read lines are used to cancel crosstalk noise between said write lines and said read lines.

25-36. Canceled

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.